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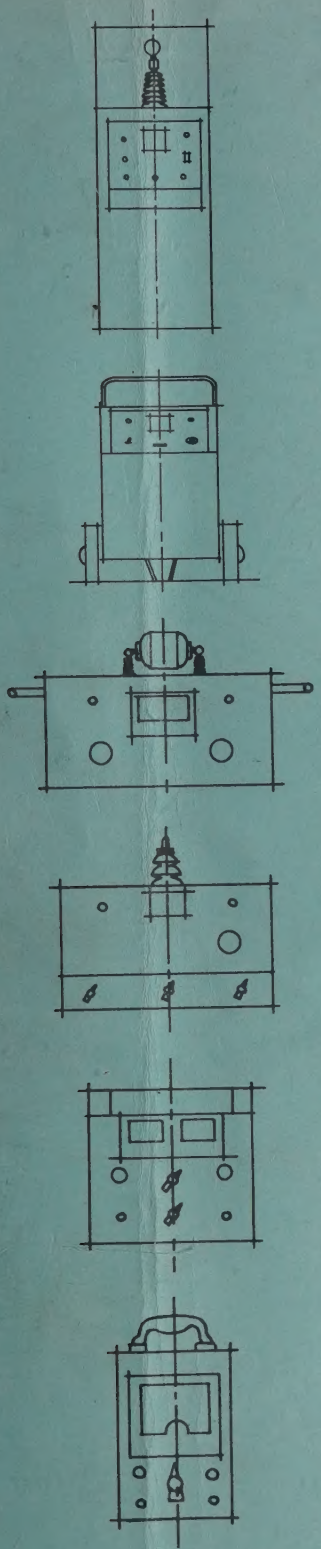


MODEL 4142

HEAVY DUTY AC HYPOT

MP MASTER
MA30081

ASSOCIATED RESEARCH, INC.
6125 WEST HOWARD STREET • CHICAGO, ILLINOIS 60648

MODEL 4142

HEAVY DUTY AC HYPOT

SAFETY

The test operator must follow all accepted safety practices, proceed with caution, and do all in his power to assure a safe test.

Because of the inherent dangers in any high voltage work, special care must be taken to safeguard personnel during any testing or fault finding.

GENERAL

Regardless of the type test to be made or fault to be found, certain preliminary steps should precede the actual test. First, open all switches and breakers to de-energize the cable or equipment and isolate the item. Using a hot stick and rubber gloves, ground all sections of the test item to insure that it is not charged.

Careful advance planning is essential to a proper and safe test. Proper test equipment, ground leads, high voltage cables, hot stick, rubber gloves and any other special tools should be assembled at the test site.

The equipment to be tested should be de-energized, *properly grounded and disconnected. Cables to be tested should be de-energized, *properly grounded, and isolated from other components such as switch gear, transformers, lightning arrestors, etc. Both ends of a cable to be tested should be disconnected and protected to safeguard passing personnel. The conductors at the far end of a cable should be separated and taped to avoid external flash over or leakage during the test.

A man should be stationed at any point where the test item is accessible to unauthorized people and barriers should be erected. Signs should be posted that read "DANGER - HIGH VOLTAGE TEST IN PROGRESS, KEEP AWAY". Do not use terms such as "KILOVOLTS", "KV" or "HV" because the average person does not understand the true meaning of these terms or abbreviations.

Decide upon the proper test procedure to be followed before starting the test.

HIGH VOLTAGE TESTING

After making any test turn the high voltage switch OFF and return the voltage control to zero or minimum position, check the kilovoltmeter for a zero indication (on DC test the capacitive element of the test item will hold a charge and may take a long time to discharge) and *ground the test item before disconnection. After a DC test has been performed the ground should be left on the item for at least as long as the total time high voltage was applied to prevent a voltage build up due to absorption currents. It is best to leave a ground on a test item any time it is not in service or undergoing a test.

*Any time a ground is to be placed on a circuit it should first be grounded with a hot stick and rubber gloves. All circuits not in use (or connected to a guard or BYPASS circuit) should be grounded. See following page.

FAULT FINDING

Make an insulation resistance test on the faulted cable between the conductor and ground, shield or housing before testing on both ends of a cable to determine the condition of the fault. Consider all the factors effecting the faulted cable, such as the resistance of the fault, the age of the cable, the condition of the ground (if buried), the humidity, the voltage rating of the cable, etc. and decide on the best test method or methods to be used.

Because of the heavy pulse current (possibly thousands of amperes) generated with capacitance discharge equipment, it is absolutely essential that careful attention be paid to proper grounding and safety practices. The test equipment should be tied to a good earth ground with as short and heavy a connection as possible. The unused phases of a multi-phase cable and the sheath or neutral should also be tied to this same ground.

EQUIPMENT GROUNDING INSTRUCTIONS

It is absolutely essential for safety of operating personnel as well as for proper operation of the test equipment, that the equipment be effectively grounded. Effectively grounded, as defined in the National Electrical Code, means " ..... connected to earth through a ground connection of sufficiently low impedance and having sufficient ampacity to prevent the building up of voltage which may result in undue hazard to connected equipment or to persons."

Depending on the power input requirements, some instruments may be equipped with a power input cable having a three-prong grounding type plug, a two-prong plug with grounding clip, or a three conductor cable terminating in lugs (where one lug is for ground connection). In any case an effective ground connection must be provided.

Where a three-prong grounding type plug is used, the equipment will be grounded through the ground prong provided that the receptacle itself is effectively grounded through a low impedance ground connection.

On instruments equipped with a two-prong plug and grounding clip, a three conductor line cord terminated in lugs, or where a two-prong adapter is used on a three-prong plug, the grounding clip or lead must be connected to a low impedance earth ground. For a low impedance earth ground, a continuous metallic underground water system may be used for ground connection. Where this is not available a driven ground rod may be used to provide an effective earth ground. In either case the resistance to ground of the piping system or driven ground rod should not exceed 25 ohms as required by the National Electrical Code.

Some instruments are equipped with a safety ground terminal in addition to the grounding conductor in the line cord. This terminal should be connected to an auxiliary grounding electrode, having low impedance, such as a piping system or driven ground referred to above. This terminal should be connected to ground with heavy wire.

If test equipment is being used in the field where input power is provided by a gasoline engine driven alternator, generator, or a battery operated converter, it is essential that not only the test equipment but also the metallic framework or housing of the power source be grounded.

Failure to comply with the above equipment grounding instructions could result in dangerous electrical shock to operating personnel.

TABLE OF CONTENTS

Specifications and Description ---------- Section 1

General Features
(Primary Operating Controls and Indicators) ---------- Section 2

Optional Features (If applicable)
(Primary Operating Controls and Indicators) ---------- Section 2B

General Features
(Power Supply, Control System and Terminations) ---------- Section 3

Optional Features (If applicable)
(Power Supply, Control System, and Terminations) ---------- Section 3B

Operating Instructions ---------- Section 4

Schematic Wiring Diagram ---------- Section 5

Replacement Parts List ---------- Section 6

Materials Test Fixtures (If applicable) ---------- Section 7

ASSOCIATED RESEARCH, INCORPORATED

6125 West Howard Street

Chicago, Illinois 60648

U.S.A.

SECTION I

SPECIFICATIONS & DESCRIPTION

SPECIFICATIONS

MODEL AND TYPE:	4142 HEAVY DUTY AC HYPOT with remote control console and inter-connecting power and signal control cables.
INPUT VOLTAGE AND FREQUENCY:	440 Volts @ 60 Hz, single phase
INPUT TERMINATION:	Ten foot long, 3 single conductor permanently attached POWER CABLES, terminated in 3 lugs for connection to power source.
OUTPUT VOLTAGE:	Continuously adjustable in single output range from 0-150 kilovolts AC with motor operated voltage control. Fixed speed rate of rise of 5000 volts per second monitored by a three range KILOVOLTMETER scaled 0-50/100/150 kilovolts.
OUTPUT CURRENT:	667 MILLIAMPERES MAXIMUM, Limited by an OVERLOAD DETECTOR with dual range of 100 and 667 MILLIAMPERES for presetting maximum acceptable leakage current.
CAPACITY:	100 KVA; 5 MIN ON and 15 MIN OFF: 75 KVA; 1 Hr. ON and 3 HRs. OFF; 37.5 KVA; Continuous duty.
OUTPUT TERMINATION:	High voltage output bushing and GROUND RETURN terminals.
CABINETRY:	Castor mounted grey steel oil tank housing HIGH VOLTAGE power supply and castor mounted remote control section. HIGH VOLTAGE POWER SUPPLY: 36½" High (to top of high voltage bushing x 32-3/4" Wide x 43" Deep REMOTE CONTROL CONSOLE: 30-3/4" High x 28½" Wide x 25½" Deep.

INSTALLATIONS INSTRUCTIONS

Turn the POWER switch OFF.

See CABLE CONNECTION DIAGRAM on rear of control section and connect cables as follows.

Connect the SAFETY GROUND terminals on both the control section and high voltage power supply section to earth ground as indicated in the General Features section of this manual.

Connect the ground cable on control section (second cable from right as viewed from rear of control section) to the center GROUND terminal on oil tank termination box. To connect cables "Y-1" and "Y-2" to the high voltage power supply section, remove the screws securing the termination box cover, and feed cables "Y-1" and "Y-2" through the cable strain reliefs in the bottom of the termination box. Connect these cables to the lugs provided at terminals "Y-1" and "Y-2". Tighten the cable strain reliefs and replace the termination box cover. Connect CONTROL CABLE "A" as shown on the cable connection diagram. Cables "L-1" and "L-2" and GROUND must be connected to a source of proper voltage and sufficient current capacity as specified on the name-plate of the instrument.

Connect SAFETY INTERLOCK to external interlock if used. (See General Features section of this manual for use of SAFETY INTERLOCK).

SECTION II

GENERAL FEATURES

(PRIMARY OPERATING CONTROLS AND INDICATORS)

GENERAL FEATURES

(PRIMARY OPERATING CONTROLS AND INDICATORS)

POWER SWITCH

The POWER SWITCH makes or breaks input power to the instrument. It may control a remotely located contactor or power relay, or it may switch the input line directly - depending on the input current requirements. On some instruments this switch is also the input circuit breaker.

HIGH VOLTAGE SWITCH

This three position lever switch, operating in the low voltage input line, controls the energizing or de-energizing of the high voltage control circuit. With this switch in its center position, the high voltage control circuit is de-energized, and no high voltage is available at the output termination regardless of the position of the voltage control . In the CONTINUOUS position with the voltage control at minimum output volts position, the high voltage control circuit will be energized, and the lever switch will remain in this position until returned to center OFF by the operator. In the MOMENTARY position with the voltage control at minimum output volts position, the high voltage control circuit will be energized only as long as the operator holds the lever switch in this position.

NOTE: Some instruments may be equipped with a second high voltage control switch for additional safety, or for remote control. Both switches must then be operated to energize high voltage. The second switch may be a push button test prod or a remote control switch.

HIGH VOLTAGE LOCKOUT

The HIGH VOLTAGE LOCKOUT switch disables the high voltage output system for safety of operating personnel when high voltage connections are being made, or to prevent unauthorized use of the equipment.

By turning the key to the left, the high voltage control circuit will be rendered inoperative. The key may be removed when the LOCKOUT switch is in this position.

KILOVOLTMETER

The KILOVOLTMETER meters the high voltage output from the instrument. It is connected directly across the output termination, thus indicating true terminal voltage irrespective of regulation.

On instruments equipped with multiple meter ranges, multiple output ranges, lamping MEMORY METERS with or without multiple ranges, or high limit meter with or without multiple ranges, refer to the OPTIONAL FEATURES section of this manual.

OUTPUT CURRENT SWITCH

This switch provides for selecting overload breaker sensitivities. Some instruments may be equipped with dual ranges, others with three ranges. Positions for a dual range are identified HIGH and LOW, while three ranges are identified HIGH - MED - LOW. The overload breaker sensitivity for these ranges will be specified in the SPECIFICATION section for a particular instrument.

If the instrument is equipped with an optional continuously adjustable overload breaker, the OUTPUT CURRENT switch will provide multiple ranges of continuous adjustment. If the instrument is equipped with high limit adjustable current meter, then it will not be equipped with an OUTPUT CURRENT switch. See OPTIONAL FEATURES section if equipped with any of the above options.

POWER AND HIGH VOLTAGE INDICATORS

The POWER light indicates the availability of primary power, while the HIGH VOLTAGE pilot light indicates availability of high voltage at the output termination. The POWER indicator will be ON any time line power is available to the instrument and the POWER switch is ON, providing all primary input circuit breakers are closed. The HIGH VOLTAGE indicator will be ON only while the high voltage control circuit is energized.

MOTOR DRIVE SYSTEM AND CONTROL SWITCH

A continuously variable VOLTAGE CONTROL gives the operator smooth control for in reasing or decreasing the output voltage between minimum and maximum. This control is equipped with a zero return interlock switch, making it necessary for the control to be at its minimum output volts position before the high voltage control ircuit an be energized. This prevents the sudden appli ation of high voltage to the item under test. The control is also equipped with a low and high limit switch to protect the voltage control against over travel.

On this instrument the voltage control is equipped with a fixed speed motor drive system to provide a uniform rate of increase or decrease of high voltage as specified in the SPECIFICATION section of this manual.

By operating and holding the HIGH VOLTAGE "RAISE-LOWER-STOP" switch to either the "RAISE" or "LOWER" position the voltage control system will either increase or decrease the HIGH VOLTAGE OUTPUT at a uniform rate as specified in the SPECIFICATION section of this manual. When this switch is released, it will return to the center "STOP" position thus stopping the motor drive system.

"AT MINIMUM" INDICATOR

The "AT MINIMUM" indicator light is on when the voltage control is at the minimum output volts position.

SECTION IIB

OPTIONAL FEATURES

(PRIMARY OPERATING CONTROLS AND INDICATORS)

KILOVOLTS SWITCH

If the instrument is equipped with multiple kilovoltmeter ranges, this switch provides for selecting KILOVOLTMETER ranges for higher accuracy when testing at low voltages. This switch does not select output voltage ranges. It simply changes the full scale value of the meter itself. A higher range may be selected at any time, but a lower range should not be selected unless the KILOVOLTMETER indication is less than full scale value of the lower range to be selected. However, should the range switch be accidentally switched, the meter is electrically protected against overloads.

If the instrument is equipped with multiple OUTPUT voltage ranges, this switch - operating in an interlocked control circuit - provides for selecting output voltage ranges. Each of these output voltage ranges requires the same approximate voltage control travel (approximately 80 percent), providing for better resolution and fine control when testing at voltages lower than maximum output of the instrument. To prevent misapplication of high voltage to a specimen under test, these voltage ranges are interlocked to de-energize the high voltage circuit should the KILOVOLTS range switch be activated while high voltage is energized.

NOTE: On instruments equipped with multiple output ranges, it will always be necessary to select the desired output range before energizing the H.V. control circuit. If input power is interrupted, or the output range is switched when the high voltage control circuit is energized, it will be necessary to turn the HIGH VOLTAGE switch OFF and return the HIGH VOLTAGE ADJUST CONTROL to its full counterclockwise position (MINIMUM). Operating the HIGH VOLTAGE switch to the ON position will then energize the HIGH VOLTAGE CONTROL CIRCUIT, making high voltage available at the output termination, through use of the HIGH VOLTAGE ADJUST CONTROL.

SECTION III

GENERAL FEATURES

(POWER SUPPLY, CONTROL SYSTEM, AND TERMINATIONS)

GENERAL FEATURES

(CONTROL SYSTEMS AND TERMINATIONS)

OUTPUT TERMINATION

The high voltage output may be terminated in a shielded high voltage cable or terminal. A high voltage cable extends from the rear of the cabinet, while a high voltage terminal, whether it be an apparatus bushing or a banana jack, is mounted on top of the cabinet. The GROUND and other return terminals, if any, are located either on top of the cabinet or on the termination panel of the instrument. If the GROUND terminal is a banana jack, it will be located on a white, acrylic plate on top of the cabinet on 4-3/4" centers with the HIGH VOLTAGE banana jack to accept Associated Research test fixtures. If a test cage is used, all output terminations will be terminated therein. To prevent stray leakage from affecting the operation of the equipment, the output terminations and the area between them should be kept clean at all times.

On instruments equipped with a BURN circuit, a two conductor cable, terminated in clips and extending from the termination panel, will provide for connection to the test item. The high voltage transformer is bypassed during a burn test and a low voltage, current limited AC power supply provides BURN output power.

PRIMARY CIRCUIT BREAKERS OR FUSES

The primary circuits of this instrument are protected by circuit breakers or fuses of the proper type and rating.

A removable panel, identified by an escutcheon, will provide access to fuses when required.

Should any of these circuit breakers or fuses open, the cause should be investigated. The breakers may be reset by pressing in firmly on their reset button. Replace fuses with new fuses of identical rating.

SAFETY INTERLOCK RECEPTACLE

The SAFETY INTERLOCK RECEPTACLE, located on the rear skirt of the cabinet, provides for interlocking the high voltage control circuit from a remotely located switch. This receptacle is electrically connected in series with the high voltage lever switch, and has a jumper wire across the terminals of the mating plug as the instrument is shipped from the factory. To use the SAFETY INTERLOCK, remove the twist-lock plug from

SAFETY INTERLOCK RECEPTACLE (Continued)

its receptacle and remove the jumper wire from its terminals. Connect the wires of the remotely located switch to the terminals of this plug and re-insert the plug into its twist-lock receptacle. While the remotely located switch is open, the high voltage control circuit will be disabled and no high voltage will be available at the output termination, regardless of the setting of any other controls on the instrument.

SAFETY GROUND TERMINAL

The ground terminal located on the rear skirt of the cabinet, identified SAFETY GROUND, is to be used for grounding the equipment to earth ground. This connection must be made in addition to that made by the INPUT cable ground conductor. Use a conductor of sufficient ampacity, preferably a number 12 or larger, with a heavy duty lug for connection to the SAFETY GROUND TERMINAL. Use a compression clamp to connect this ground conductor to a low impedance driven ground or a continuous water piping system. This ground conductor should be as short as possible, preferably less than ten feet long.

CAUTION: FAILURE TO PROPERLY GROUND THE EQUIPMENT COULD RESULT IN A DANGEROUS SHOCK HAZARD.

INPUT POWER CABLE

The INPUT POWER CABLE is a three conductor type, properly terminated, depending on the input current and voltage.

On 440 volt instruments and instruments requiring very high input current, the INPUT POWER CABLE is permanently attached and terminated in three lugs identified L-1 and L-2 for the line and GND. for ground.

NOTE: BE SURE THE INSTRUMENT IS CONNECTED TO A GOOD EARTH GROUND REGARDLESS OF TYPE OF INPUT CABLE TERMINATION.

SECTION IV

OPERATING INSTRUCTIONS

GENERAL INSTRUCTIONS

1. Read the Instruction Manual thoroughly and become familiar with the function of all controls and control systems.

2. Turn the POWER switch OFF and connect the POWER INPUT cable to a source of proper VOLTAGE and sufficient current capacity as specified on the NAMEPLATE.

   Assure that the SAFETY GROUND is properly connected as directed in the GENERAL FEATURES section.

CAUTION: FAILURE TO COMPLY WITH GROUNDING INSTRUCTIONS COULD BE HAZARDOUS.

OPERATING INSTRUCTIONS

1. Place the HIGH VOLTAGE control switch in the OFF position.

2. Turn the HIGH VOLTAGE LOCKOUT switch OFF (full counter-clockwise).

3. Turn the POWER switch ON. (If the instrument is equipped with an adjustable high limit kilovoltmeter or milliammeter, allow a 60 second warm-up time).

4. Operate and hold the HIGH VOLTAGE "RAISE - LOWER - STOP" switch to the lower position until the "AT MINIMUM" indicator light is on.

5. Set the KILOVOLTS range switch on a range that will provide best readability of the test voltage to be applied.

6. Select the desired range on the OUTPUT CURRENT CONTROL switch.

7. Again assure that the HIGH VOLTAGE control switch is OFF. Connect the item to be tested to the high voltage cable or terminal and the proper return terminals. (See GENERAL FEATURES). If the unit is terminated in banana jacks, a test fixture may be used.

8. Turn the HIGH VOLTAGE LOCKOUT switch ON (full clockwise)

9. Operate the HIGH VOLTAGE control switch to the CONTINUOUS or MOMENTARY position to energize the high voltage control circuit.

10. To apply high voltage, operate and hold the HIGH VOLTAGE "RAISE - LOWER - STOP" switch to the RAISE position until the KILOVOLTMETER indicates the required test voltage. Test voltage may also be reduced by operating and holding this switch in the LOWER position.

11. Should failure occur in the test item, the OUTPUT CURRENT DETECTOR will open the high voltage circuit circuit, and the HIGH VOLTAGE output will be de-energized.

12. To re-energize high voltage after a test item failure, repeat steps 1, 4, 9 and 10.

13. When the test is complete always operate and hold the HIGH VOLTAGE "RAISE - LOWER - STOP" switch to the "LOWER" position until the "AT MINIMUM" light is ON and turn the HIGH VOLTAGE control switch "OFF".

SECTION V

SCHEMATIC WIRING DIAGRAM

USED ON

POWER

L-1

GND

INPUT 440 V
60 Hz 1 Ph

TB1-4
SAFETY
GROUND

1-2

CB-1A

F1

440 V
H2
H1

110 V

X1

X2

H4 H3 H2 H1

Y1

Y2

GROUND

T1

T2

CB-1B

POWER

2T

MINIMUM

B-1

B-2

B-3

B-4

B-5

B-6

A-A

A-B

S1

HIGH VOLTAGE

RAISE S2

STOP

LOWER

RAISE L

OVER LIMIT

INTERLOCK

SAFETY

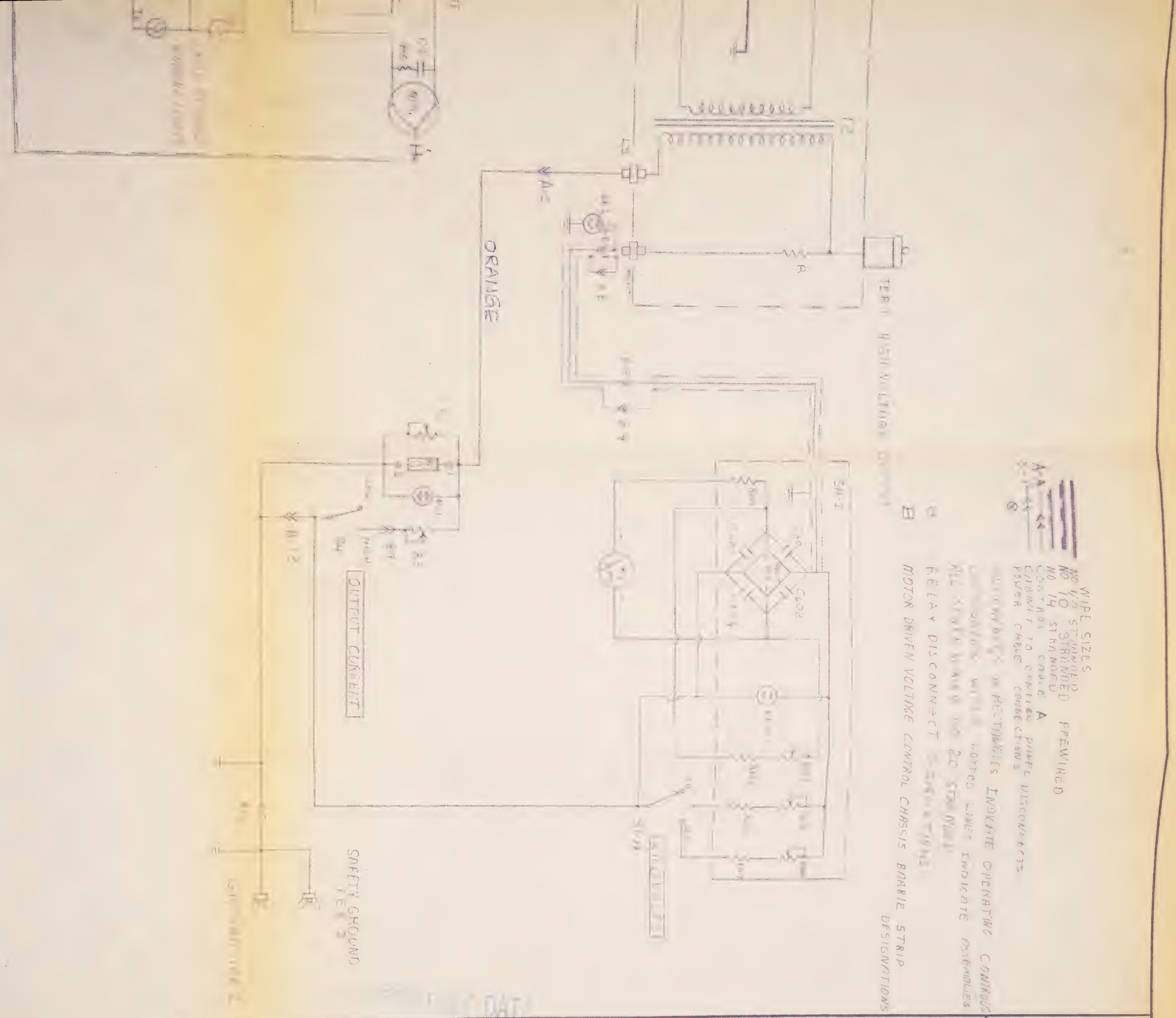
P-1

A K

3A

C/L

L FL1



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ASSOCIATED RESEARCH, INC.
6125 W. Howard St.
Chicago, IL 60648

DATA TO ANY ORGANIZATION, AGENCY OR COMPANY FOR ANY PURPOSE WHAT SO EVER.

SECTION VI

REPLACEMENT PARTS LIST

MODEL 4142 - AC HEAVY DUTY CONSOLE

REPLACEMENT PARTS LIST

SYMBOL	PART NO.	DESCRIPTION
C-601,604	P15217	Capacitor, .001 mfd @ 1 KV
CB-1	P19364	Circuit breaker, 300 amp., 3 pole
F-1	P18027	Fuse, 6 amp.
FL-1	P15362	Flasher
I-1,2	P16437	Indicator, 115 V. @ 3 w. (POWER & H.V.)
I-3 thru 6	P16437	Indicator, 115 V., 3 watt (WARNING INDICATOR)
I-7	P15328	Indicator, 115 V., amber (AT MINIMUM)
M-1	P10959w/s-370-D	Meter, 0-40 microamps (KILOVOLTMETER) w/scale, 0-50/100/150 KV AC
NE-1	P15485	Neon lamp, NE-32
NE-2	P15485	Neon lamp, NE-32
NE-601	P8591	Neon lamp, NE-2
P-1	P11730	Plug, 2 prong, male (SAFETY INTERLOCK)
R-1	P15214	Resistor, fixed; 42.5 meg., 25 KV @ 6 watt (SERIES)
R-2	P16459	Resistor, adjustable, 600 ± 10%, 12 watts, 140 MA
R-3	P18387	Resistor, adjustable, 100 ± 10%, 710 MA 50 watts
R-601	P11823	Resistor, fixed; 500K ± 1%, ½ watt
R-602	P11823	Resistor, fixed; 500K ± 1%, ½ watt
R-603	P18983	Resistor, variable; 750K ± 10%, ½ watt
R-604	P18987	Resistor, variable; 200K ± 10%, ½ watt
R-605	P18986	Resistor, variable 100K ± 10%, ½ watt
R-606	P10725	Resistor, fixed; 100K ± 1%, ½ watt
R-607	P11821	Resistor, fixed; 50K ± 1%, ½ watt
RECP-1	P11729	Receptacle, female (SAFETY INTERLOCK)
RY-1	P19365	Relay, w/no aux., 3 pole, 100 amp., 120 V coil (H.V. CONTROL)
RY-2	P14246	Relay, SPST 120 V. Coil, 10 A. (CONTRACTOR CONTROL)
RY-3	17970	Relay assembly in case w/plug
S-1,2	P17791	Switch, lever, 2-1C (H.V., RAISE - LOWER)
S-3	P17837	Switch, micro, DPDT (low limit, zero return)
S-4	P9690	Switch, toggle; 2 pos. (OUTPUT CURRENT)
S-5	P10636	Switch, key, SPST (LOCKOUT)
S-6	P17942	Switch, rotary, 2 pole, 3 pos., shorting (KILOVOLTS)
S-7	P19521	Switch, micro, SPDT (HI limit)
T-1	P19280w/P19279	Transformer assembly w/brushes - 1256-8ps (VOLTAGE)
T-2	19255	Transformer, H.V., 150 KV @ 100 KVA (B-10943)
T-3	P14804	Transformer, 440 V. to 110 V., 500 watt
TER-1	P19018	Terminal, H.V., 150 KV
TER-2,3	10304	Terminal, GROUND (SAFETY GROUND)
TER-4	10304	Terminal, nickel (SAFETY GROUND)
	15874	Cable assembly (GROUND) (B-6084)
	P20,000-NC	Manual, 4142-1
	P19552	Blower, 115 Volt
R-4	P10133	Resistor, fixed; 820 ohms ± 10%, 2 watt

BULLETIN 10-1.9

FEB. 1973

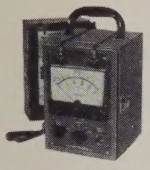
ASSOCIATED RESEARCH, INC.

INSULATION TESTING INSTRUMENTS

for electronic equipment and systems

Insulation Resistance Testers

Ranges from 100 to 10 million megohms at test potentials to 10 KV.



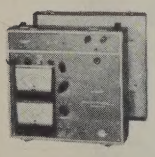
The MEG-CHEK® megohmmeter provides a wide selection of battery and line-powered instruments for accurate insulation resistance measurements of circuits, components, cables, motors, etc. They are direct reading and push button operated requiring no cranking or leveling.

Select from 17 models ranging from pocket-size to portable 10 KV with variable voltage. Some models combine megohm with ohm and AC-DC volt scales in one instrument. Five popular models are:

Model	DC Test Voltage	Max. Megohms	Features	Price
2001	500	100	Pocket-size	$ 99
2201	500	200	Includes 2K ohm and six AC-DC volt scales	165
2211	1000	2000	200 K ohm range	255
2850	500/50	10 Million	Constant test voltage through 6 decades	345
2955	0-2,500	50,000	Adjustable test voltage	890

Request MEG-CHEK Megohmmeter Bulletins by model number.

Portable DC HYPOTS® to 200 KV



Output of the several portable DC HYPOTS is continuously variable from 0 to maximum with the voltage metered directly in the output. Leakage current measurements are on four range meters reading down to as low as 0.05 microamps. Features: 2% metering accuracies, electronic circuit protection, by-pass and metered return terminals, grounded steel cases, silicon rectifiers, plug-in high voltage leads, etc.

Model	Output Voltage	Output Current	Price
5205	0-5 KV	2.0	$ 550
5212	0-10 KV	2.0	675
5220	0-15 KV	2.0	735
5471	0-50 KV	5.0	2450
5321	0-100 KV	5.0	3115

Request Portable DC HYPOT Bulletins

Portable Precision Ohmmeter

0-50,000 ohms

Accurate to 1/2 of 1%.

Model 244 provides ranges 0-50/500/5000/50000 ohms with readings as low as 0.05 ohm. Compensation provided for lead resistance and battery aging, giving ½ of 1% center scale accuracy.

Model 244 ..... $175.00

Request Bulletin 16-1.3

A-C HYPOT Jrs. . . to 10 KV, limited current

Portable a-c dielectric strength testers providing outputs continuously variable from 0-1500 V up to 10,000 V a-c. Use of neon breakdown and leakage current indicators in conjunction with collapsing field-type high voltage transformers assures rapid and safe production testing.

The leakage current indicator is adjustable from 0.3 to 3 ma. A 4½" kilovoltmeter provides high accuracy. Short-circuit current cannot exceed 18 ma.

Three popular models are:

Model	Output Voltage	Price
411	0-2,500	$190
404	0-4,000	195
422	0-10,000	315

HYPOT Jr. Automatic "Squawker" Models

Available with output voltages from 0-1500 volts to 0-6000 volts a-c. Similar to the standard HYPOT Jr. models but include an audible signal unit and external control terminals.

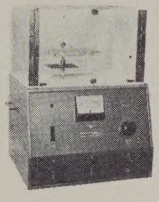
Request Bulletin 4-1.3.

DC and Combined AC/DC HYPOT Jrs.

offer same features as described above, plus test potentials to 5 KV.

Request AC & DC HYPOT Jr. Bulletins.

Insulating Materials Testers



A full range of testers for solid and liquid insulating materials to 100 KV and higher is available. Due to the rapid progress of insulating materials and testing techniques, new equipment is added whenever required to meet ASTM, MIL and Federal test specifications.

Model 4501 Materials Testing HYPOT 0-35 KV at 2 KVA

This popular model meets dielectric strength testing requirements of Specification D-149, ASTM Standards on Electrical Insulation Materials. Output continuously variable from 0-35 KV a-c at 2 KVA (intermittent rating). Magnetic breaker trips when specimen breaks down. Output termination in jacks at center of the lucite cabinet top accepts the interchangeable ARI materials testing fixtures. Optional features: interlocked clear lucite test cage and selection of ARI plug-in materials testing fixtures, automatic rate of rise, dual sensitivity circuit breaker, etc.

Request Insulation Materials Tester Bulletin

High Voltage Test Equipment to 500 KV AC and 1,000 KV DC

A full range of instruments for extra high voltage dielectric strength testing. AC or DC potentials at capacities of up to 150 KVA or more. Control and measurement features include: automatic rate of voltage rise, memory circuit to record breakdown voltage, output current metering, separate low voltage control and high voltage test cabinets and many others.

ARI has over 30 years experience in the design and manufacture of heavy duty very high voltage test equipment. All instruments are ruggedly constructed and fully tested in our own high voltage laboratory.

Corona Testing Equipment

New instruments detect, display and measure corona caused by voids, surface or other conditions in the insulation sample or the equipment under test.

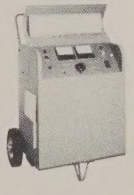
Instruments include: specially constructed corona-free HYPOT test set, a pickup network to extract the true corona signal and the corona detection display module. Detector also incorporates a calibrator to make quantitative corona measurements down to 0.1 picocoulombs.

These modules are available as individual units or as a complete integrated instrument. Standard models with test potentials of 10 to 100 KV AC include these two popular models:

Model	Output KV	KVA Capacity	Cabinet Style	Price
4074	10	0.25	Bench	$2250
4309	35	1.0	Console	3950

Request Bulletin 4-1.9.

Mobile HYPOTS . . . to 150 KV DC



Heavy-duty mobile test sets for determining insulation leakage and dielectric strength of cables, bushings, switch-gear, transformers, motors and generators.

Outputs continuously variable from 0 to 45 KV and on up to 150 KV, with ratings of 2.5, 5, 10 ma. at full voltage.

Features include: 4½" kilovoltmeter connected directly across the high voltage output; three-range 4½" microammeter electronically protected against overload; zero return interlock; connector for remote safety interlock; fast-acting magnetic circuit breaker in output to protect high voltage circuits and external load; thermal overload breaker to protect input circuits; long-life silicon high voltage rectifiers; metered return and bypass return terminals for measurement of load (leakage) or bypass (guard) currents.

Request Mobile DC HYPOT Bulletin 5-1.16.

FREE TESTING INSTRUMENT MANUAL

Write on your company letterhead for a free copy of the 60-page Manual 2900 containing bulletins, specs, application data and prices on the instruments covered above.

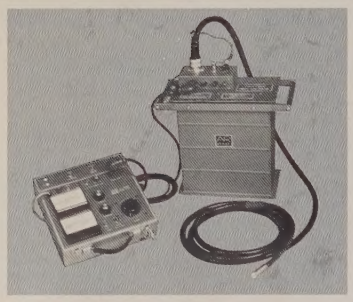
INSULATION TESTING INSTRUMENTS

for cables, generators and utility equipment

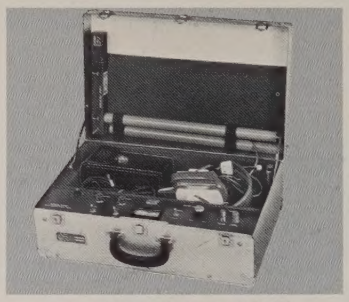
ASSOCIATED RESEARCH, INC

BULLETIN 10-1.9

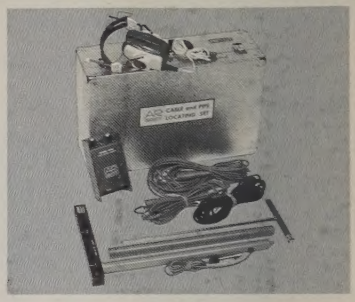
FEB. 1973



HV DC CABLE TESTERS
50, 100, 160 and 200 KV
rugged, field portable models.
Ask for Bulletin 5-1.20.

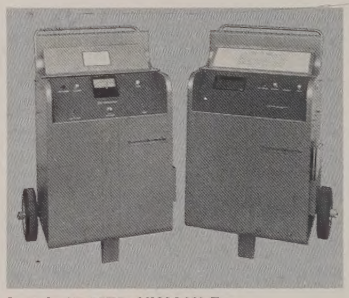


CABLE LOCATOR/FAULT FINDER
for URD secondary cables.
Ask for Bulletin 5-1.23.

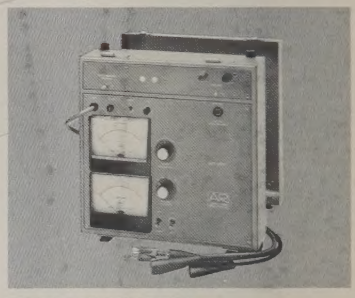


CABLE & PIPE TRACER
Trace energized & de-energized cable.
Trace metal pipe. Determine depth.
Ask for Bulletin 5-1.24.

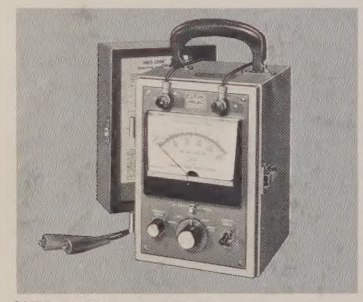
FAULT DETECTORS
Magnetic and acoustical.
Ask for Bulletin 5-10.23.



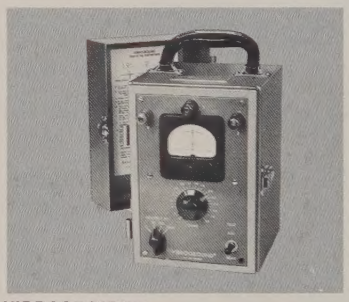
3, 5 & 15 MFD HYJOULE®
High energy "Thumper" cable fault locators. 25 KV DC power.
Ask for Bulletin 5-1.21.



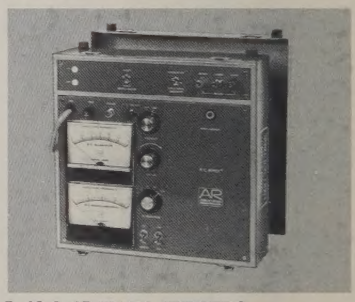
HV MEGOHMMETERS
For testing high voltage equipment. Three models with 2.5, 5 and 10 KV potential. *Ask for Bulletin 2-1.8.*



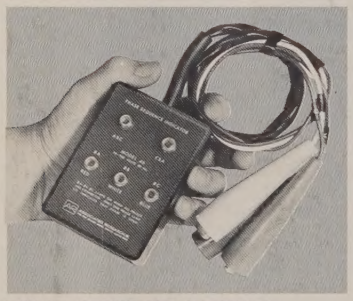
MEG-CHEK® MEGOHMMETERS
For insulation resistance testing at 500 or 1000 VDC.
Ask for Bulletin 2-1.9.



VIBROGROUND®
For measuring resistance of ground rods and systems.
Ask for Bulletin 1-1.5.



5, 10 & 15 KV DC HYPOTS®
For testing motors and equipment rated to 4160 VAC.
Ask for Bulletin 5-1.22.



PHASE SEQUENCE INDICATOR
Identifies phase sequence on 90-700V circuits. New 2500V model also available.
Ask for Bulletin 7-1.4.

CABLE TESTING TRAILER
Complete with 5KW generator, HYJOULE® Fault Locator, HV DC HYPOT & related test instruments.

FREE 60-PAGE MANUAL

Manual D-62 covers specs, application data and prices on the test instruments for HV cables, generators and utility equipment as illustrated above.
For your copy request Manual D-62 on your company letterhead.

ASSOCIATED RESEARCH, INC

Instruments for measuring: • Insulation resistance . . . the MEG-CHEK® • Ground resistance — soil resistivity . . . the VIBROGROUND® • High Voltage breakdown, AC-DC . . . The HYPOT® • Cable Fault location . . . the HYJOULE® • Special instrumentation for laboratory, production, and maintenance needs.

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